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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,744	03/13/2001	Takashi Usui	7254/64037	2561

7590 10/04/2005  
Cooper & Dunham LLP  
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EXAMINER

WARE, CICELY Q

ART UNIT PAPER NUMBER

2634

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/804,744	USUI ET AL.	
	Examiner	Art Unit	
	Cicely Ware	2634	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Objections***

1. Claims 1-12 are objected to because of the following informalities:
  - a. Examiner suggests applicant define all elements of the synchronization pattern (i.e. I , A and B).

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being obvious over Keller et al. (IEEE, Orthogonal Frequency Division Multiplex synchronization Techniques for Wireless Local Area Networks) in view of Olafsson (US Patent 6,332,009), in further view of Sato et al. (US Patent 5,596,582).

(1) With regard to claim 1, Keller et al. discloses a digital communication systems wherein a data modulation method comprises the steps of: encoding a transmission data to data symbol (1); inserting the reference symbol in which multiple synchronizing patterns are aligned in time series in order; and modulating the data symbol in which said reference symbol is inserted to radio frequency signals (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13)

However Keller et al. does not disclose the phase-shifted synchronizing pattern in said data symbol.

However Olafsson discloses the phase-shifted synchronizing pattern in said data symbol (col. 7, lines 46-52, 66-67, col. 8, line 1).

Therefore it would have been obvious to one of ordinary skill in the art to modify Keller et al. in view of Olafsson to incorporate the phase-shifted synchronizing pattern in said data symbol in order to create a signal that will be substantially immune to the effects of digital pads (Olafsson, col. 7, lines 53-54).

However Keller et al. in combination with Olafsson do not disclose the reference symbol producing a two peak waveform output when said reference symbol is input to a correlator of a receiver, thereby producing a distinguishable waveform pattern from other waveform patterns produced by other communication systems.

However Sato et al. discloses in (Fig. 10) the reference symbol producing a two peak waveform output when said reference symbol is input to a correlator of a receiver (55, 57), thereby producing a distinguishable waveform pattern from other waveform patterns produced by other communication systems (col. 9, lines 10-50).

Therefore it would have been obvious to one of ordinary skill in the art to modify the inventions of Keller et al. in combination with Olafsson in view of Sato et al. to incorporate the reference symbol producing a two peak waveform output when said reference symbol is input to a correlator of a receiver, thereby producing a distinguishable waveform pattern from other waveform patterns produced by other

communication systems in order to allow the frequency acquisition range to be widened and improve the resistance to multipath interference.

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Keller et al. further discloses wherein said step of modulating the data symbol comprises conducting the modulation according to the orthogonal frequency division multiplexing (OFDM) system (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

(3) With regard to claim 3, claim 3 inherits all the limitations of claim 1. However Keller et al. (IEEE, Orthogonal Frequency Division Multiplex Synchronization Techniques for Wireless Local Area Networks) in combination with Olafsson (US Patent 6,332,009), in further view of Sato et al. (US Patent 5,596,582) do not disclose a definite synchronization pattern.

However it is well known in the art that a pattern sequence can be arranged in many different ways. Therefore it is obvious that different pattern sequences can be arranged in multiple ways as a matter of the users design choice.

Therefore claim 3 does not constitute patentability.

(4) With regard to claim 4, claim 4 inherits all the limitations of claim 3 and 2. Keller et al. further discloses wherein said step of modulating the data symbol comprises conducting the modulation according to the orthogonal frequency division multiplexing (OFDM) system (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

(5) With regard to claim 5, inherits all the limitations of claim 1. However Keller et al. (IEEE, Orthogonal Frequency Division Multiplex Synchronization Techniques for Wireless Local Area Networks) in combination with Olafsson (US Patent 6,332,009), in

further view of Sato et al. (US Patent 5,596,582) do not disclose a definite synchronization pattern.

However it is well known in the art that a pattern sequence can be arranged in many different ways. Therefore it is obvious that different pattern sequences can be arranged in multiple ways as a matter of the users design choice.

Therefore claim 5 does not constitute patentability.

(6) With regard to claim 6, claim 6 inherits all the limitations of claims 5 and 4. Keller et al. further discloses wherein said step of modulating the data symbol comprises conducting the modulation according to the orthogonal frequency division multiplexing (OFDM) system (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

(7) With regard to claim 7, claim 7 inherits all the limitations of claim 5. However Keller et al. (IEEE, Orthogonal Frequency Division Multiplex Synchronization Techniques for Wireless Local Area Networks) in combination with Olafsson (US Patent 6,332,009), in further view of Sato et al. (US Patent 5,596,582) do not disclose a definite synchronization pattern.

However it is well known in the art that a pattern sequence can be arranged in many different ways. Therefore it is obvious that different pattern sequences can be arranged in multiple ways as a matter of the users design choice.

Therefore claim 7 does not constitute patentability.

(8) With regard to claim 8, claim 8 inherits all the limitations of claims 7 and 6. Keller et al. further discloses wherein said step of modulating the data symbol

comprises conducting the modulation according to the orthogonal frequency division multiplexing (OFDM) system (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

(9) With regard to claim 9, claim 9 inherits all the limitations of claim 1. Keller et al. further discloses modulation means for modulating the data symbol in which said reference symbol is inserted to wireless frequency signal (Pg. 963, col. 1, lines 32-41, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

(10) With regard to claim 10, claim 10 inherits all the limitations of claim 5. Keller et al. further discloses modulation means for modulating the data symbol in which said reference symbol is inserted (Pg. 963, col. 2, lines 46-49, Pg. 964, col. 1, lines 1-13).

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being obvious over Keller et al. (IEEE, Orthogonal Frequency Division Multiplex synchronization Techniques for Wireless Local Area Networks) in view Olafsson (US Patent 6,332,009), in further view of Sato et al. (US Patent 5,596,582), as applied to claim 1, in further view of Kwak (US Patent 6,175,391).

(11) With regard to claim 11, claim 11 inherits all the limitations of claim 1. Keller et al. in combination with Olafsson in combination with Sato et al. disclose all the limitations of claim 1 above. However Keller et al. in combination with Olafsson in combination with Sato et al. do not disclose a communication device comprising an antenna for receiving/transmitting the modulated signal; and synchronization detection means for obtaining the correlation value between the reference symbol of the signal received and the delayed reference symbol and detecting the synchronization.

However Kwak discloses a communication device comprising an antenna for receiving/transmitting the modulated signal; and synchronization detection means for obtaining the correlation value between the reference symbol of the signal received and the delayed reference symbol and detecting the synchronization (abstract, col. 5, lines 4-5, col. 1, lines 61-67, col. 2, lines 1-22).

Therefore it would have been obvious to one of ordinary skill in the art to modify the inventions of Keller et al. in combination with Olafsson in combination with Sato et al. to incorporate a communication device comprising an antenna for receiving/transmitting the modulated signal; and synchronization detection means for obtaining the correlation value between the reference symbol of the signal received and the delayed reference symbol and detecting the synchronization in order to prevent malfunctions caused by momentary external noise (Kwak, col. 3, lines 9-10).

(12) With regard to claim 12, claim 12 inherits all the limitations of claim 5. Kwak further discloses a communication device comprising an antenna for receiving/transmitting the modulated signal; and synchronization detection means for obtaining the correlation value between the reference symbol of the signal received and the delayed reference symbol and detecting the synchronization (abstract, col. 5, lines 4-5, col. 1, lines 61-67, col. 2, lines 1-22).

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

*Cicely Ware*

cqw  
September 26, 2005

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINE**  
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